

**IN THE UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF TEXAS  
WACO DIVISION**

STC.UNM,

Plaintiff,

v.

TAIWAN SEMICONDUCTOR  
MANUFACTURING COMPANY LIMITED  
and TSMC NORTH AMERICA, INC.,

Defendants.

CIVIL ACTION NO. 6:19-CV-261

JURY TRIAL DEMANDED

**PLAINTIFF'S ORIGINAL COMPLAINT FOR  
PATENT INFRINGEMENT AND JURY DEMAND**

Plaintiff STC.UNM files this Original Complaint for Patent Infringement and Jury Demand against Defendants Taiwan Semiconductor Manufacturing Company Limited and TSMC North America, Inc. (collectively “Defendants” or “TSMC”). Plaintiff alleges infringement of United States Patent Number 9,142,400 (the “400 Patent”) as follows:

**I. PARTIES**

1. Plaintiff STC.UNM is a New Mexico nonprofit research park corporation formed, owned, and controlled entirely by the Board of Regents of the University of New Mexico (“UNM”).
2. UNM is a public educational institution based in Albuquerque, New Mexico and serves as the State of New Mexico’s flagship research institution. UNM serves over 25,000 students and comprises over 1,700 faculty members at its main campus in Albuquerque and branch campuses in Gallup, Los Alamos, Rio Rancho, Taos, and Los Lunas, New Mexico.
3. Over the past 20 years, UNM researchers have disclosed over 1,700 new inventions resulting in the issuance of over 500 United States patents.

4. STC.UNM's mission includes nurturing inventions researched and developed at UNM, promoting technological collaboration between UNM and other universities and research institutes, and catalyzing economic development in and for the State of New Mexico.

5. STC.UNM furthers its mission by licensing its inventions and, if necessary, enforcing its intellectual property rights. STC.UNM reinvests licensing proceeds into continued research and development at UNM, for the benefit of the State of New Mexico and the rest of the United States.

6. STC.UNM is located at the UNM Lobo Rainforest Building, 101 Broadway Boulevard, Suite 1100, Albuquerque, New Mexico 87102.

7. Plaintiff STC.UNM, UNM, and the Board of Regents of UNM are arms of the State of New Mexico and enjoy sovereign immunity under the common law, statutes, and constitutions of the United States and the State of New Mexico including, but not limited to, the Eleventh Amendment of the United States Constitution and Article 12 of the New Mexico Constitution. *See Regents of University of New Mexico v. Knight*, 321 F.3d 1111 (Fed. Cir. 2003); *STC.UNM v. Quest Diagnostics Inc.*, CIV 17-1123 MV/KBM, 2019 WL 1091390, at \*1 (D.N.M. Mar. 8, 2019).

8. By filing this lawsuit or prosecuting this action, STC.UNM does not waive, either expressly or implicitly, its sovereign immunity, the sovereign immunity of UNM or its Board of Regents, or the sovereign immunity enjoyed by any arm of the State of New Mexico under the laws of the United States or the State of New Mexico, to any *inter partes* review, *ex parte* reexamination, or other post-grant proceeding at the United States Patent and Trademark Office or its Patent Trial and Appeal Board, to any other administrative actions or proceedings whatsoever, to any noncompulsory counterclaims, or to any other federal or state proceedings whatsoever, whether initiated by Defendants or an entity other than Defendants.

9. Defendant Taiwan Semiconductor Manufacturing Company Limited is a Taiwanese company with an address at No. 8, Li-Hsin Road 6, Hsinchu Science Park, Hsinchu 300-78, Taiwan, Republic of China.

10. Defendant TSMC North America, Inc. is a wholly-owned subsidiary of Defendant Taiwan Semiconductor Manufacturing Company Limited. TSMC North America, Inc. is a California corporation, and has a physical place of business at 11921 North Mopac Expressway, Austin, Texas 78759. TSMC North America, Inc. is actively transacting business in Texas. The Registered Agent for process of service is Steven A. Schulman, 2851 Junction Avenue, San Jose, California 95134.

## II. JURISDICTION

11. This action arises under the Patent Laws of the United States, 35 U.S.C. § 1 *et seq.*, including 35 U.S.C. §§ 271, 281, 283, 284, and 285. This is a patent infringement lawsuit over which this Court has subject matter jurisdiction under 28 U.S.C. §§ 1331 and 1338(a).

12. This United States District Court for the Western District of Texas has general and specific personal jurisdiction over Defendants because Defendants are present in and transact and conduct business in and with residents of this District and the State of Texas.

13. STC.UNM's causes of action arise, at least in part, from Defendants' contacts with and activities in this District and the State of Texas.

14. Defendants have committed acts of infringing the '400 Patent within this District and the State of Texas by making, using, selling, offering for sale, and/or importing in or into this District and elsewhere in the State of Texas products made by practicing the claimed method of the '400 Patent. Defendants, directly and through intermediaries, make, use, sell, offer for sale, ship, distribute, advertise, promote, and/or otherwise commercialize such infringing products in this District and the State of Texas. Defendants regularly conduct and solicit business in, engage in other

persistent courses of conduct in, and/or derive substantial revenue from goods and services provided to residents of this District and the State of Texas.

### III. VENUE

15. Venue is proper against Taiwan Semiconductor Manufacturing Corporation Limited in this District because venue in a patent infringement action against a foreign defendant is proper in any judicial district. *Brunette Mach. Works, Ltd. v. Kochum Indus., Inc.*, 406 U.S. 706, 711-714 (1972), cited by *TC Heartland LLC v. Kraft Foods Grp. Brands LLC*, 137 S. Ct. 1514, 1520 n.2 (2017).

16. Venue is proper in this District against TSMC North America, Inc. because: (1) TSMC North America, Inc. has a physical place located in the District, (2) it is a regular and established place of business, and (3) it belongs to TSMC North America, Inc. *See In re Cray Inc.*, 871 F.3d 1355 (Fed. Cir. 2017).

17. STC.UNM does not waive its sovereign immunity as to any venue, including district courts and administrative tribunals, other than this Court, namely the United States District Court for the Western District of Texas, Waco Division.

### IV. UNITED STATES PATENT NUMBER 9,142,400

18. United States Patent Number 9,142,400 is titled “Method of Making a Heteroepitaxial Layer on a Seed Area.” The ’400 Patent claims priority to United States Patent Application Number 13/944,808, which was filed on July 17, 2013 which, in turn, claims priority to United States Provisional Patent Application Number 61/672,713, filed on July 17, 2012. The ’400 Patent issued on September 22, 2015. A true and correct copy of the ’400 Patent is attached as Exhibit A.

19. The ’400 Patent claims patent-eligible subject matter and is valid and enforceable.

20. The ’400 Patent’s named inventors are UNM professors Steven R. J. Brueck, Stephen D. Hersee, Seung-Chang Lee, and Daniel Feezell.

21. Professors Brueck, Hersee, Lee, and Feezell conveyed to STC.UNM all rights, title, and interest in and to the invention of the '400 Patent and its underlying patent applications, including the right to sue and recover for patent infringements, by written assignments recorded in the United States Patent and Trademark Office.

22. Defendants are not licensed to the '400 Patent, either expressly or implicitly, nor do they enjoy or benefit from any rights in or to the '400 Patent whatsoever.

## **V. THE ACCUSED INSTRUMENTALITIES**

23. Defendants manufacture semiconductor devices at several different process nodes (*i.e.*, minimum physical feature size or line width), including the 7 nanometer, 10 nanometer, 12 nanometer, and 16 nanometer process nodes. The semiconductor devices manufactured by Defendants are, in turn, incorporated into third-party electronic components and products, such as computer chips, smartphones and other mobile devices, and computer graphics cards. For example, semiconductor devices made according to Defendants' 16 nanometer process node have been incorporated into the A9 chip, which has been incorporated into and for the Apple iPhone 6s and 6s+ products.

24. Hereafter, the term "Accused Instrumentalities" refers to all products manufactured by Defendants by practicing the '400 Patent and all processes employed by Defendants that practice the '400 Patent, including at least semiconductor devices manufactured according to the 16 nanometer process node and electronic components and products incorporating such semiconductor devices and processes.

## **VI. DIRECT, INDUCED, AND CONTRIBUTORY INFRINGEMENT**

25. The Accused Instrumentalities include a heteroepitaxial layer (*e.g.*, silicon germanium) made according to the process claimed in the '400 Patent, including but not limited to claim 1. Defendants form a nanostructured pedestal (*e.g.*, silicon) on a semiconductor substrate (*e.g.*, silicon).

The pedestal (*e.g.*, silicon) has top and side surfaces. Defendants form a seed area (*e.g.*, cavity etch) on the top surface. The seed area has a linear surface dimension ranging from about 10 to 100 nanometers (*e.g.*, 16 nanometers). Defendants provide a selective growth mask layer (*e.g.*, silicon dioxide and/or silicon nitride) on the top and side surfaces and selectively remove it (*e.g.*, reactive ion etch) to expose the seed area. Defendants selectively etch back (*e.g.*, reactive ion etch) the exposed top surface and grow the heteroepitaxial layer (*e.g.*, silicon germanium) on the seed area.

26. Defendants have directly infringed and continue to directly infringe the '400 Patent under 35 §§ U.S.C. 271(a) and 271(g) by making, using, selling, offering to sell, and/or importing in or into the United States Accused Instrumentalities and other products made by practicing and by performing processes that practice the '400 Patent as described above, including at least claim 1. By way of example, such Accused Instrumentalities include the A9 chips manufactured, used, sold, offered for sale, and/or imported by Defendants.

27. Defendants likewise have induced infringement of the '400 Patent under 35 U.S.C. § 271(b). Defendants actively encouraged their customers (*e.g.*, Apple Inc.) to directly infringe the '400 Patent by using, selling, offering for sale, and/or importing electronic devices and products containing the Accused Instrumentalities (*e.g.*, iPhone 6S, iPhone 6S+, and A9 chip). Defendants actively encouraged their customers to employ Defendants' infringing process nodes to manufacture their customers' semiconductor devices, electronic components, and products by and through Defendants' sales engineering and technical marketing efforts and staff. Defendants' sales engineers and technical marketing staff interface with Defendants' customers and potential customers to obtain "design wins" (*i.e.*, contracts with customers) to develop and manufacture chips using the infringing processes. In attempting to obtain these "design wins," Defendants' sales engineers and technical marketing staff tout the technological and economic benefits of the infringing processes and actively encourage use of the infringing processes to make customers' chips. Defendants have

known that their customers' acts constituted direct infringement of at least one claim of the '400 Patent since at least September 25, 2018, when Defendants received written notice of the '400 Patent and claim charts detailing how at least their 16 nanometer process node and semiconductor devices manufactured thereto infringe the '400 Patent. As a result of Defendants' active encouragement and intentional inducement, Defendants' customers have committed acts of directly infringing the '400 Patent.

28. Defendants likewise are liable as contributory infringers of the '400 Patent under 35 U.S.C. § 271(c). Defendants have offered to sell and/or sold within the United States services for manufacturing and designs for the Accused Instrumentalities that practice the '400 Patent. The Accused Instrumentalities comprise semiconductor devices, each of which constitutes a material part of the '400 Patent's invention, namely the claimed heteroepitaxial layer, that can be incorporated into electronic components and products. For example, such manufacturing services and designs were offered for sale, sold, and marketed by and through Defendants' sales engineering and technical marketing efforts and staff. Such efforts resulted in the infringing process to be used to make the A9 chip. Upon information and belief, Defendants' customers do not manufacture the A9 chip on their own, but contract with others, such as Defendants, to manufacture such chips. Defendants have known such Accused Instrumentalities and semiconductor devices incorporating the claimed heteroepitaxial layer to be especially adapted for practicing, and thus infringing the '400 Patent since at least September 25, 2018, when Defendants received written notice of the '400 Patent and claim charts detailing how at least their 16 nanometer process node and semiconductor devices manufactured thereto infringe the '400 Patent. Neither the claimed heteroepitaxial layer nor the Accused Instrumentalities are staple articles or a commodity of commerce suitable for substantial noninfringing use because they cannot be used individually without incorporation into electronic components and products. Thus, Defendants are liable as contributory infringers.

## **VII. WILLFUL PATENT INFRINGEMENT**

29. Defendants have had actual knowledge of the '400 Patent since no later than September 25, 2018.

30. Defendants have continued making, using, offering for sale, selling, and/or importing the accused instrumentalities despite an objectively high likelihood that their actions infringe at least one claim of the '400 Patent thus making Defendants liable for willful infringement damages pursuant to 35 U.S.C. § 284.

31. Defendants' direct, induced, contributory, and willful infringement of the '400 Patent has caused, and will continue to cause, substantial damage to STC.UNM. Therefore, STC.UNM is entitled to an award of damages adequate to compensate for Defendants' infringement, but not less than reasonable royalty, together with pre-and post-judgment interest, attorneys' fees, and costs as fixed by the Court under 35 U.S.C. §§ 284 and 285.

## **VIII. JURY DEMAND**

32. Plaintiff STC.UNM hereby demands a trial by jury for all causes of action.

## **IX. PRAYER FOR RELIEF**

33. Plaintiff requests the following relief:

A. A judgment that Defendants have directly infringed either literally and/or under the doctrine of equivalents and continue to directly infringe the '400 Patent;

B. A judgment that Defendants have induced infringement and continue to induce infringement of the '400 Patent;

C. A judgment that Defendants have contributorily infringed and continue to contributorily infringe the '400 Patent;

D. A judgment and order requiring Defendants to pay Plaintiff damages under 35 U.S.C. § 284, including treble damages for willful infringement as provided by 35 U.S.C. § 284,



and supplemental damages for any continuing post-verdict infringement through entry of the final judgment with an accounting as needed;

E. A judgment that this is an exceptional case within the meaning of 35 U.S.C. § 285 and Plaintiff is therefore entitled to reasonable attorneys' fees;

F. A judgment and order requiring Defendants to pay Plaintiff pre-judgment and post-judgment interest on the damages awarded;

G. A judgment and order awarding a compulsory ongoing royalty;

H. A judgment and order awarding Plaintiff costs associated with bringing this action;

I. A judgment granting a preliminary and permanent injunction that restrains and enjoins Defendants, its officers, directors, employees, agents, servants, parents, subsidiaries, successors, assigns, and all those in privity, concert or participation with them from directly or indirectly infringing the '400 Patent; and

J. Such other and further relief as the Court deems just and equitable.

Dated: April 12, 2019

Respectfully submitted,

By: /s/ Charles L. Ainsworth

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